

I CLAIM AS MY INVENTION:

1. A universal X-ray device comprising:
an X-ray radiator;
a radiation detector for detecting X-rays emitted by said radiator;
a movably suspended holder having a holder plane;
a radiator mount for mounting said radiator to said holder so that said radiator
is rotatable around at least one axis perpendicular to said holder plane;
and
a detector mount for mounting said detector to said holder allowing
displacement of said detector in said detector plane.

2. A universal X-ray device as claimed in claim 1 wherein said holder is a C-arm.

3. A universal X-ray device as claimed in claim 1 wherein said radiator mount
allow said radiator to be rotated by at least 90° away from a line proceeding between
said radiator and said detector.

4. A universal X-ray device as claimed in claim 1 wherein said radiator mount
also allows said radiator to be rotated around a second axis disposed in said holder
plane, allowing said radiator to be tilted out of said holder plane.

5. A universal X-ray device as claimed in claim 4 wherein said radiator mount
is a Cardanic mount.

6. A universal X-ray device as claimed in claim 1 wherein said detector mount is a swivel arm having a first end to which said detector is rotatably mounted and a second end that is rotatably hinged to an end of said holder so that said arm is displaceable in said detector plane.

7. A universal X-ray device as claimed in claim 1 further comprising a first motor actuator for rotating said radiator, a second motor actuator for displacing said detector, and a third motor actuator for moving said holder.

8. A universal X-ray device as claimed in claim 7 further comprising a control unit connected to said first motor actuator, said second motor actuator and said third motor actuator for controlling respective movements of said holder, said detector and said radiator to obtain a plurality of individual images for undistorted combination to form a larger, combined image.

9. A universal X-ray device as claimed in claim 8 wherein said radiator has a focus from which said radiation is emitted, and wherein said control unit tilts said radiator and said detector as a unit relative to said focus.

10. A universal X-ray device wherein said holder is a C-arm having a first end at which said radiator mount and said radiator are disposed, and a second end at which said detector mount and said detector are disposed.

11. A method for operating an X-ray device comprising the step of:
providing a movably suspended holder having a holder plane;
mounting an X-ray radiator to said holder so as to be rotatable around at least
one axis perpendicular to said holder plane;
mounting a radiation detector, for detecting radiation from said radiator, to said
holder for displacement in said detector plane;
moving said detector for obtaining a plurality of X-ray images using said radiator
and said detector from a plurality of exposure positions on a circular arc
around a focus of said radiator so that a central ray of an X-ray beam
emitted from said radiator is perpendicularly incident on a middle of said
detector; and
combining images respectively obtained at said exposure positions to obtain a
large-format composite X-ray image without distortion.

12. A method as claimed in claim 11 comprising displacing and aligning said
detector at the respective exposure positions.

13. A method as claimed in claim 11 comprising tilting said radiator for
aligning said central ray of said X-ray beam to said middle of said detector.

14. A method as claimed in claim 11 comprising providing a primary radiation
diaphragm through which said X-ray beam proceeds, and adjusting said primary
radiation diaphragm to align said central ray of said X-ray beam on said middle of said
detector.